

WHAT IS CLAIMED IS:

1. A method of fabricating a chemical array, said method comprising:  
(a) determining a chemical array layout in which each feature in said chemical array layout has a size that is chosen based on its composition; and  
(b) fabricating said chemical array according to said chemical array layout.
2. The method of Claim 1, wherein at least two features are of different sizes.
3. The method of Claim 2, wherein said at least two features are of the same probe composition.
4. The method of Claim 2, wherein said at least two features are of different probe compositions.
5. The method of Claim 1, wherein said fabricating is accomplished with a fluid drop deposition device.
6. The method of Claim 5, wherein said fluid drop deposition device comprises at least one deposition head and said fabricating comprises modulating the applied activation signal for each ejector of said at least one deposition head to produce said features.
7. The method of Claim 6, wherein said deposition head is under the control of a processor and said method comprises transmitting said feature sizes to said processor, whereby said processor performs said modulating based on said feature sizes.
8. The method of Claim 7, wherein each ejector is a piezoelectric ejector.
9. The method of Claim 1, wherein said chemical array is a nucleic acid array.
10. The method of Claim 1, wherein said chemical array is a peptide array.

11. A method of fabricating a chemical array with multiple features of different sizes, said method comprising:

modulating a waveform provided to at least one orifice ejector based on said chemical array feature sizes to dispense volumes of fluid from an orifice associated with said at least one orifice ejector, wherein said volume dispensed is based on said modulated waveform provided to said orifice ejector.

12. The method of Claim 11, wherein said method comprises providing a first modulated waveform based on a feature size of a first feature and second modulated waveform based on a feature of a second feature to said at least one ejector orifice.

13. The method of Claim 12, wherein said first and second modulated waveforms are provided to the same orifice ejector which is associated with a single orifice, whereby said volume of fluid for said first feature and said volume of fluid for said second feature are both dispensed from said single orifice.

14. The method of Claim 12, wherein said first and second modulated waveforms are provided to different orifice ejectors associated with different orifices, whereby said volume of fluid for said first feature and said volume of fluid for said second feature are dispensed from different orifices.

15. The method of Claim 11, wherein the feature size of a first feature is different than the feature size of a second feature and said modulation comprises providing a first waveform to said at least one orifice ejector to dispense a first volume of fluid for said first feature and a second waveform to said at least one orifice ejector to dispense a second volume of fluid for said second feature.

16. The method of Claim 15, wherein said first and second waveforms are provide to the same orifice ejector and said first and second volumes of fluid are dispensed from the same orifice.

17. The method of Claim 15, wherein said first and second waveforms are provide to different orifice ejectors and said first and second volumes of fluid are dispensed from different orifices.

18. The method of Claim 11, wherein said modulating step comprises providing an activation signal to said at least one orifice ejector.
19. The method of Claim 18, wherein said method further comprises selecting said activation signal from a database that comprises a population of activation signals and respective feature sizes.
20. The method of Claim 11, wherein at least one of said dispensed fluids is a phosphoramidite fluid.
21. The method of Claim 11, wherein said at least one of said dispensed fluids is an activator fluid.
22. The method of Claim 11, wherein said method is a method of fabricating a nucleic acid array.
23. The method of Claim 11, wherein said method is a method of fabricating a peptide array.
24. A method of fabricating a chemical array with multiple features of different sizes, said method comprising:
  - modulating a waveform provided to at least one orifice ejector based on said feature sizes to dispense one or more drops of fluid from an orifice associated with said at least one orifice ejector, wherein a volume of each drop dispensed is based on said modulated waveform provided to said orifice ejector.
25. A method comprising performing an array assay with a chemical array fabricated according to a method of Claim 1.
26. A method comprising transmitting data from a method of Claim 25 from a first location to a second location.

27. The method according to Claim 26, wherein said second location is a remote location.
28. A method comprising receiving a transmitted result of a reading of an array obtained according to the method Claim 25.
29. An algorithm for practicing the method of Claim 1, wherein said algorithm is recorded on a computer readable medium.
30. An apparatus for fabricating a chemical array, wherein said apparatus is capable of fabricating a chemical array wherein all of the features of said chemical array differ in size.
31. The apparatus of Claim 30, wherein said apparatus comprises at least one deposition head comprising a plurality of orifices and each orifice comprises an ejector activated by an activation signal, and further wherein the activation signal provided to each ejector is capable of being modulated prior to activation.
32. A system for fabricating a chemical array, said system comprising:
  - (a) a fluid drop deposition device for fabricating a chemical array, wherein said fluid drop deposition device is capable of controlling the size of each feature of said array that is fabricated by said apparatus; and
  - (b) at least one chemical array layout.
33. A kit comprising:
  - (a) a chemical array fabricated according to the method of Claim 1, and
  - (b) instructions for using said fabricated chemical array in an array assay.